

The WorkKeys® System

For answers to the sample questions and a more extensive overview of WorkKeys, visit [WorkKeys online at www.workkeys.com](http://www.workkeys.com) or call 800/WORKKEY (937-5539)

WorkKeys is a job skills assessment system measuring “real world” skills that employers believe are critical to job success. These skills are valuable for any occupation – skilled or professional – and at any level of education. The WorkKeys system is centered around three major components – Assessments, Job Analysis, and Training.

WorkKeys has been developed by ACT, an international leader in educational assessment and workforce development services for more than forty years, best known for the ACT Assessment college entrance exam. Over the past decade, ACT has completed WorkKeys job and occupational profiles for thousands of jobs across every employment field and has administered millions of WorkKeys assessments. The system is used by thousands of companies and schools across the United States and internationally.

ACT endorses the *Code of Fair Testing Practices in Education* and the *Code of Professional Responsibilities in Educational Measurement*, guides to the conduct of those involved in educational testing. ACT is committed to ensuring that each of its testing programs upholds the guidelines in each *Code*. A copy of each *Code* may be obtained free of charge from ACT Customer Services (68), P.O. Box 1008, Iowa City, IA 52243-1008. (319) 337-1429.

WorkKeys®

Unlock the Power of Your Workforce

APPLIED MATHEMATICS

The WorkKeys® *Applied Mathematics* test measures the skills people use when they apply mathematical reasoning and problem-solving techniques to work-related problems. The test questions require the examinee to set up and solve the type of problems and do the types of calculations that actually occur in the workplace. This test is designed to be taken with a calculator. A formula sheet that includes all formulas required for the assessment is provided. While individuals may use calculators and conversion tables to help with the problems, they still need to use math skills to think them through.

There are five levels of difficulty. Level 3 is the least complex and Level 7 is the most complex. The levels build on each other, each incorporating the skills assessed at the previous levels. For example, at Level 5, individuals need the skills from Levels 3, 4, and 5. Examples are included with each level description. All test items are multiple choice and a small number of problems are included for developmental purposes. Answers to these developmental questions do not count toward the examinee's score.

Characteristics of Level 3 Skills

Individuals with Level 3 skills can:

- Solve problems that require a single type of mathematics operation (addition, subtraction, multiplication, and division) using whole numbers
- Add or subtract negative numbers
- Change numbers from one form to another using whole numbers, fractions, decimals, or percentages
- Convert simple money and time units (e.g., hours to minutes)

Level 3 Sample Item

In your job as a cashier, a customer gives you a \$20 bill to pay for a can of coffee that costs \$3.84. How much change should you give back?

- A. \$15.26
- B. \$16.16
- C. \$16.26
- D. \$16.84
- E. \$17.16

Characteristics of Level 4 Skills

In addition to demonstrating the skills at Level 3, individuals with Level 4 skills can:

- Solve problems that require one or two operations
- Multiply negative numbers
- Calculate averages, simple ratios, simple proportions, or rates using whole numbers and decimals
- Add commonly known fractions, decimals, or percentages (e.g., $\frac{1}{2}$, .75, 25%)
- Add three fractions that share a common denominator
- Multiply a mixed number by a whole number or decimal
- Put the information in the right order before performing calculations

Level 4 Sample Item

Over the last 5 days, you made the following number of sales calls: 8, 7, 9, 5 and 7. On the average, how many calls did you make each day?

- A. 5.8 DO YOUR FIGURING HERE
- B. 7.0
- C. 7.2
- D. 9.0
- E. 36.0

Characteristics of Level 5 Skills

In addition to demonstrating the skills at the previous levels, individuals with Level 5 skills can:

- Decide what information, calculations, or unit conversions to use to solve the problem
- Look up a formula and perform single-step conversions within or between systems of measurement
- Calculate using mixed units (e.g., 3.5 hours and 4 hours 30 minutes)
- Divide negative numbers
- Find the best deal using one and two step calculations and then comparing results
- Calculate perimeters and areas of basic shapes (rectangles and circles)
- Calculate percentage discounts or markups

Level 5 Sample Item

Quick Call charges 18 cents per minute for long-distance calls. Econo Phone totals your phone usage each month and rounds the number of minutes up to the nearest 15 minutes. It then charges \$7.90 per hour of phone usage, dividing this charge into 15-minute segments if you used less than a full hour. If your office makes 5 hours 3 minutes worth of calls this month using the company with the lower price, how much will these calls cost?

- A. \$39.50
 - B. \$41.48
 - C. \$41.87
 - D. \$54.00
 - E. \$54.54
- DO YOUR FIGURING HERE

Characteristics of Level 6 Skills

In addition to demonstrating the skills at the previous levels, individuals with Level 6 skills can:

- Use fractions, negative numbers, ratios, percentages, or mixed numbers
- Rearrange a formula before solving a problem
- Use two formulas to change from one unit to another within the same system of measurement
- Use two formulas to change from one unit in one system of measurement to a unit in another system of measurement
- Find mistakes in items that belong at Levels 3, 4 and 5
- Find the best deal and use the result for another calculation
- Find areas of basic shapes when it may be necessary to rearrange the formula, convert units of measurement in the calculations, or use the result in further calculations
- Find the volume of rectangular solids
- Calculate multiple rates

Level 6 Sample Item

You are preparing to tile the floor of a rectangular room that is $15\frac{1}{2}$ feet by $18\frac{1}{2}$ feet in size. The tiles you plan to use are square measuring 12 inches on each side, and are sold in boxes that contain enough tiles to cover 25 square feet. How many boxes of tile must you order to complete the job?

- A. 11
 - B. 12
 - C. 34
 - D. 59
 - E. 287
- DO YOUR FIGURING HERE

Characteristics of Level 7 Skills

In addition to demonstrating the skills at the previous levels, individuals with Level 7 skills can:

- Solve problems that include nonlinear functions and/or that involve more than one unknown
- Find mistakes in Level 6 items
- Convert between systems of measurement that involve fractions, mixed numbers, decimals, and/or percentages
- Calculate multiple areas and volumes of spheres, cylinders, or cones
- Set up and manipulate complex ratios or proportions
- Find the best deal when there are several choices
- Apply basic statistical concepts

Level 7 Sample Item

The farm where you just started working has a cylindrical oil tank that is 2.5 feet across on the inside. The depth of the oil in the tank is 2 feet. If 1 cubic foot of space holds 7.48 gallons, about how many gallons of oil are left in the tank?

- A. 37
 - B. 59
 - C. 73
 - D. 230
 - E. 294
- DO YOUR FIGURING HERE



Unlock the Power of Your Workforce

READING FOR INFORMATION

The WorkKeys® *Reading for Information* test measures the skill people use when they read and use written text in order to do a job. The written texts include memos, letters, directions, signs, notices, bulletins, policies, and regulations. It is often the case that workplace communications are not necessarily well-written or targeted to the appropriate audience. Reading for information materials do not include information that is presented graphically, such as in charts, forms, or blueprints. The test is made up of multiple-choice questions based on reading passages that reflect actual reading demands of the workplace.

There are five levels of difficulty. Level 3 is the least complex and Level 7 is the most complex. The levels build on each other, each incorporating the skills assessed at the preceding levels. For example, at Level 5, individuals need the skills from Levels 3, 4, and 5. The reading materials at Level 3 are short and direct. The material becomes longer, denser, and more difficult to use as readers move toward Level 7. The tasks also become more complex as readers move from Level 3 to Level 7. At Level 3, readers begin by finding very obvious details and following short instructions. At the more complex levels, tasks can also involve more application and interpretation.

Characteristics of Level 3 Skills

Individuals with Level 3 skills can:

- Identify main ideas and clearly stated details
- Choose the correct meaning of a word that is clearly defined in the reading
- Choose the correct meaning of common, everyday, and workplace words
- Choose when to perform each step in a short series of steps
- Apply instructions to a situation that is the same as the one in the reading materials

Reading materials used:

Level 3 reading materials include basic company policies, procedures, and announcements. They are short and simple, with no extra information. Examinees read the materials to find out what they should do. All of the information needed to answer the questions is stated clearly and directly in the reading materials, and the questions focus on the main points of the passages.

Sample Question

ATTENTION CASHIERS:

All store employees will now get 20% off the price of clothes they buy here. Please follow the new directions listed below.

Selling clothes to employees

- Ask to see the employee's store identification card.
- Enter the employee's department code number into the cash register.
- Use the cash register to take 20% off the price. Then push the sales tax button.
- Write your initials on the sales receipt.
- Sell clothes to employees during store hours only.

Accepting clothing returns from employees

- Employees receive a store credit certificate for clothes they return to the store.
- Store credit certificates are next to the gift certificates.
- Employees may not get a cash refund for clothes they return to the store.

You are a cashier. According to the notice shown, what should you write on a store employee's receipt?

- A. The employee's identification number
- B. The employee's department number
- C. The amount of sales tax
- D. The 20% discount price
- E. Your initials

Characteristics of Level 4 Skills

In addition to the skills at Level 3, individuals with Level 4 skills can:

- Identify important details that may not be clearly stated
- Use the reading materials to figure out the meaning of words that are not defined
- Apply instruction with several steps to a situation that is the same as the situation in the reading materials
- Choose what to do when changing conditions call for different actions (follow directions that include "if-then" statements)

Reading materials used:

Level 4 reading materials include company policies, procedures, and notices. They are straightforward, but they have longer sentences and contain a number of details. These materials use common words, but do have some harder words, too. They describe procedures that include several steps. When following the procedures, individuals must think about changing conditions that affect what they should do.

Sample Question

**INSTRUCTIONS TO SORTING DEPARTMENT:
SPECIAL PROJECT TO FIX ORDER #888**

Five long, blue plastic bins have been placed over by the overhead door. Piled on the other side of this room, near the time clock, are several thousand steel rods of varying lengths. All of those rods must be sorted by length and placed in the bins.

Bin #1 is for rods that are four to five meters long.

Bin #2 is for rods that have a length of over five meters, up to six meters.

Bin #3 is for rods that have a length of over six meters, up to eight meters.

Bin #4 is for rods that have a length of over eight meters, up to ten meters.

Bin #5 is for warped or unsmoothed rods. These will not be accepted.

If these rods are not all sorted correctly, the customer will reject the order. We cannot afford to let that happen again. Work as quickly as you can because Friday is the deadline for delivery of the order.

According to the instruction shown, what is a condition for project success other than delivery on time?

- A. All rods must be sorted by both length and diameter.
- B. Rods eleven meters long must be leaned against the overhead door.
- C. The customer does not want rods that are warped.
- D. The five-meter rods must go in Bin 2.
- E. The ten-meter-long rods must arrive at the customer in Bin 4.

Characteristics of Level 5 Skills

In addition to the skills at the previous levels, individuals with Level 5 skills can:

- Figure out the correct meaning of a word based on how the word is used
- Identify the correct meaning of an acronym that is defined in the document
- Identify the paraphrased definition of a technical term or jargon that is defined in the document
- Apply technical terms and jargon and relate them to stated situations
- Apply straightforward instructions to a new situation that is similar to the one described in the material
- Apply complex instructions that include conditionals to situations described in the materials

Sample Question

Goldberg's Auto Parts is served by more than fifty different accounts, each with its own sales representative, company name, corporate address, and shipping address. As a shipping and receiving clerk at Goldberg's, you are required to return defective merchandise to the manufacturer.

Standard procedure for returning an item begins with your written request to the company for authorization. Always send the request to the corporate address, not to the shipping address. Unless the company file folder contains a form for this procedure, write a business letter to the manufacturer supplying the item's stock number, cost, and invoice number; the date it was received; and the reason for its return. The manufacturer's reply will include an authorization number from the sales representative, a sticker for you to place on the outside of the box to identify it as an authorized return, and a closing date for the company's acceptance of the returned item. If you do not attach the provided sticker, your returned box will be refused by the manufacturer as unauthorized, and you will need to obtain a new letter, authorization, sticker, and closing date. Always send a returned box to the shipping address, not the company's corporate address.

According to the policy shown, what should you do if you lose an authorization sticker?

- A. Send a request for a return authorization along with the rejected part directly to the manufacturer's shipping address.
- B. Send a request for a return authorization along with the reject part directly to the manufacturer's corporate address.
- C. Repeat the standard procedure to obtain a new letter, authorization, sticker, and closing date.
- D. Use a sticker from another company's folder.
- E. Send the rejected part to your sales representative.

Characteristics of Level 6 Skills

In addition to the skills at the previous levels, individuals with Level 6 skills can:

- Identify implied details
- Use technical terms and jargon in new situations
- Figure out the less common meaning of a word based on the context
- Apply complicated instructions to new situations
- Figure out the principles behind policies, rules, and procedures
- Apply general principles from the materials to similar and new situations
- Explain the rationale behind a procedure, policy, or communication

Reading materials used:

Level 6 materials include elaborate procedures, complicated information, and legal regulations found in all kinds of workplace documents. They use complicated sentences with difficult words, jargon, and technical terms. Most of the information needed to answer the questions is not clearly stated.

Sample Question

From: J. Kimura, Senior Vice President of Molten Metals, Inc.
To: All e-mail users at Molten Metals, Inc.

To permit our employees to communicate directly with one another as well as with vendors and customers, Molten Metals, Inc. provides a network of e-mail accounts. Access to e-mails is at the sole discretion of Molten Metals, Inc., and we will determine who is to be so empowered. Under President Duarte's leadership, all messages sent and received (even those intended as personal) are treated as business messages. Molten Metals, Inc. has the capability to and reserves the right to access, review, copy, and delete any messages sent, received, or stored on the company e-mail server. Molten metals, Inc. will disclose these messages to any party (inside or outside the company) it deems appropriate. Employees should treat this server as a constantly reviewed, shared file stored in the system.

Due to the reduced human effort required to redistribute electronic information, a greater degree of caution must be exercised by employees transmitting MM, Inc. confidential information using company e-mail accounts. Confidential information belonging to MM, Inc. is important to our independence and should never be transmitted or forwarded to persons or companies not authorized to receive that information. Likewise, it should not be sent or forwarded to other employees inside the company who do not need to know that information.

MM, Inc. strongly discourages the storage of large numbers of e-mail messages for a number of reasons. First, because e-mail messages frequently contain company confidential information, it is good to limit the number of such message to protect the company's information. Second, retention of messages fills up large amounts of storage space on the e-mail server and personal hard disks, and can slow down the performance of both the network and individual personal computers. Finally, in the event that the company needs to search the network server, backup tapes, or individual hard disks for genuinely important documents, the fewer documents it has to search through, the more economical the search will be. Therefore, employees are to delete as soon as possible any e-mail messages they send or receive.

Based on the memo shown, personal messages transmitted or received using Molten Metals, Inc. e-mail accounts will be:

- A. Automatically deleted upon detection.
- B. Avoided by server staff to save company time.
- C. Forwarded to private, personal account.
- D. Grounds for personnel action.
- E. Treated no differently from other messages.

Characteristics of Level 7 Skills

In addition to the skills at the previous levels, individuals with Level 7 skills can:

- Figure out the definitions of difficult, uncommon words based on how they are used
- Figure out the meaning of jargon or technical terms based on how they are used
- Figure out the general principles behind the policies and apply them to situations that are quite different from any described in the materials

Reading materials used:

At Level 7, the reading materials are very complex. The information includes a lot of details, and the concepts are complicated. The vocabulary is difficult. Unusual jargon and technical terms are used, but they are not defined. The writing often lacks clarity and direction. Readers must draw conclusions from some parts of the reading and apply them to other parts.

(continues on next page)

Sample Question

March 17

We will begin use of the new guidelines on Capital Management this October with the onset of the new fiscal year (with the exception of the Alpha-Beta Division and our European subsidiaries as noted below). A Standing Committee on Capital Management has been formed to administer the policy. Research & Development will pilot the policy starting in May. Feedback from R&D will be considered by the Standing Committee.

As you know, the primary intention of the Capital Management Policy is to gain some control and discipline over what has been a somewhat arbitrary process of funding projects and new enterprises. Whereas in the past, any project could potentially go forward to the Executive Committee for consideration regardless of merit, we will now have a process of screening and rating based on funding category, amount, need, return, and volume.

Categories for funding requests will include Savings, Repair & Replacement, New Enterprises, Acquisitions, and Budget Appropriations. Due to the improved controls, and to streamline the process, authorization levels have been raised, providing that the funding request is aligned with the new policy. General managers will now have authority to approve appropriations up to \$50,000; division managers, \$50,000 to \$100,000. The Capital Management Committee may approve appropriations up to \$500,000 and the Executive Committee will continue to provide approval for appropriations above that level.

Financial criteria will be the major consideration for Savings, New Enterprise, and Acquisition requests. Minimum projected rate of return will be 20%. New Enterprise and Acquisition requests must be projected to build company volume by at least 20,000 units or 10% of that division's current sales volume. In addition, to achieve funding, New Enterprise projects will be required to meet established Consumer Research targets for marketplace acceptance and reflect the most recent federal product safety guidelines. All criteria must be met regardless of amount and approval level. There may be rare circumstances where it is justified to deviate from these criteria, such as competitive threat, but any exception must be approved by the Board of Directors.

R&R and Budget Appropriations will be judged on need. A set of detailed scoring criteria has been created to rank projects on this basis. These criteria will be used for funding anything more than \$5 million that does not specifically generate a return, such as equipment replacement or construction of new office space.

Because Alpha-Beta is a recent acquisition, it will maintain its funding processes until its accounting systems have transitioned to the corporate system. Due to differences in the European business, a separate task force has been chartered to develop procedures for the European subsidiaries.

You are a manager in the New Enterprise Division preparing a budget request for \$1.5 million for a new project. Based on the notice shown, you must demonstrate in your request all of the following EXCEPT:

- A. A competitive threat to the company.
- B. A potential for an increase in company-wide sales.
- C. Acquiescence to governmental rules.
- D. Data that shows that the product will sell well.
- E. The profitability to the company.



Unlock the Power of Your Workforce

LOCATING INFORMATION

The WorkKeys® *Locating Information* test measures the skill people use when they work with workplace graphics such as charts, graphs, tables, forms, flowcharts, diagrams, floor plans, maps, and instrument gauges. Examinees are asked to find information in a graphic or insert information into a graphic. They also must compare, summarize, and analyze information found in related graphics.

The test covers four levels. Level 3 is the least complex and Level 6 is the most complex. The levels build on each other, each incorporating the skills assessed at the preceding levels. For example, Level 5 includes the skills used at Levels 3, 4, and 5. At Level 3, examinees look for information in simple graphics and fill in information that is missing from simple graphics. At Level 6, examinees may use the information in one or more complex graphics to draw conclusions and make decisions. The complexity can also increase as the quantity and/or density of the information increases.

Characteristics of Level 3 Skills

Individuals with Level 3 skills can:

- Find one or two pieces of information in a graphic
- Fill in one or two pieces of information that are missing from a graphic

Graphics used:

Elementary workplace graphics such as simple order forms, bar graphs, tables, flowcharts, maps, instrument gauges, or floor plans.

Sample Question



You regularly check the pressure gauge on a large tank. According to the gauge shown, what is the current pressure (in PSI)?

- A. 30
- B. 35
- C. 40
- D. 45
- E. 100

Characteristics of Level 4 Skills

In addition to the skills at Level 3, individuals with Level 4 skills can:

- Find several pieces of information in one or more graphics
- Understand how graphics are related to each other
- Summarize information from one or more straightforward graphics
- Identify trends shown in one or more straightforward graphics
- Compare information and trends shown in one or more straightforward graphics

Graphics used:

Workplace graphics are straightforward. They may be basic order forms, diagrams, line graphs, tables, flowcharts, instrument gauges, or maps. At Level 4, examinees may work with one or two graphics at a time.

Sample Question

75053

FRESH 'N' CLEAN 555-6301 4:16 PM 8/26
1200 14TH ST
MAPLETON, OH 45768

PHONE 555-2261 DATE 8-29 CLERK'S INITIALS SW

PRINT NAME EDNA THOMPSON

ADDRESS

Fold	On Hangers	Starch	NO	LT	MED	HVY
	X	X		X		
Due	MON	TUE	WED	THUR	FRI	
	X					

X	TROUSER		TROUSER
	SHIRT		SUIT
	DRESS		SHIRT
	BLOUSE		OVERCOAT
	SKIRT		SWEATER
	JACKET		DRESS
			BLOUSE
			SKIRT
			JACKET
			TIE

You must sort clothes in a dry cleaning establishment according to the customer's instructions. According to the form shown, how should this customer's shirt be treated?

- A. Dry-clean it, add light starch, and fold it.
- B. Dry-clean it, add light starch, and place it on a hanger.
- C. Launder it with no starch and place it on a hanger.
- D. Launder it with light starch and place it on a hanger.
- E. Launder it with medium starch and fold it.

Characteristics of Level 5 Skills

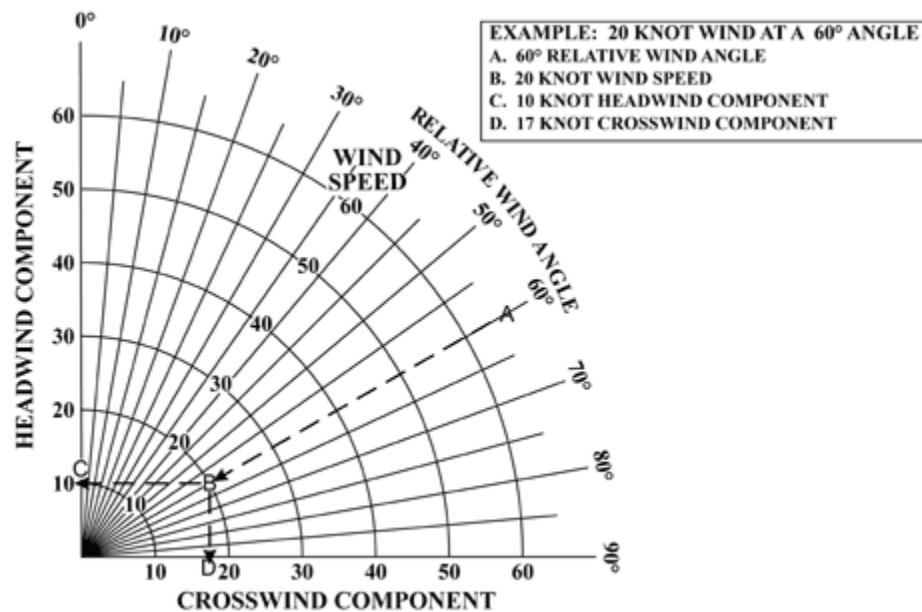
In addition to the skills at the previous levels, individuals with Level 5 skills can:

- Sort through distracting information
- Summarize information from one or more detailed graphics
- Identify trends shown in one or more detailed or complicated graphics
- Compare information and trends from one or more complicated graphics

Graphics used:

Workplace graphics are complicated. The graphics are sometimes in a less common format (such as a three-dimensional bar graph). They may be detailed forms, tables, graphs, diagrams, maps, or instrument gauges.

Sample Question



As an airplane pilot, you need to determine the crosswind component of the wind speed to ensure safe takeoffs and landings. According to the graph shown, if the reported wind speed is 45 knots at a 20° angle, what is the crosswind component, in knots?

- A. 15
- B. 25
- C. 43
- D. 45
- E. 65

Characteristics of Level 6 Skills

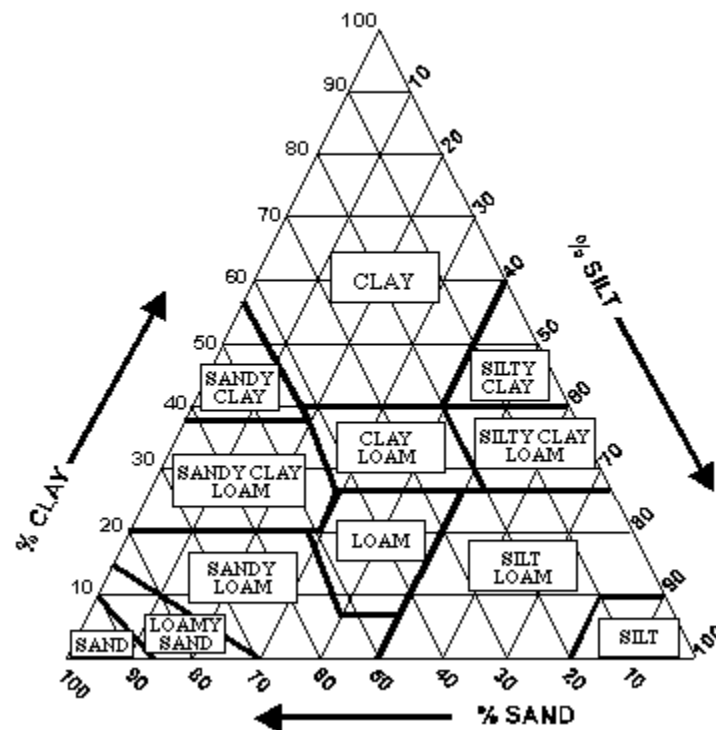
In addition to the skills at the previous levels, individuals with Level 6 skills can:

- Draw conclusions based on one complicated graphic or several related graphics
- Apply information from one or more complicated graphics to specific situations
- Use the information to make decisions

Graphics used:

Workplace graphics are very complicated. They contain large amounts of information and may have challenging formats (such as a wiring diagram, airplane control chart, or contour map). They may be very detailed graphs, charts, tables, forms, maps, and diagrams. At Level 6, examinees may work with one or more graphics at a time, and the connections between the graphics may be subtle.

Sample Question



Soil name	Texture class	Depth (inches)	Shrink-swell potential
Sarpy	sandy loam	0–7 7–60	low low to moderate
Kennebec	silt loam	0–38 38–60	moderate low to moderate
Colo	silty clay loam	0–31 31–60	high high
Blend	silty clay	0–17 17–29 29–60	high moderate to high high
Nevin	clay loam	0–28 28–48 48–60	moderate to high moderate moderate
Kenmoor	loamy sand	0–24 24–60	low high

You are a road contractor and you have analyzed a soil that you want to use for road fill. Your analysis shows that the soil contains 15% sand, 65% silt, and 20% clay. You need to know what the shrink-swell potential is for the soil because it will affect the durability of the road. Based on the diagram and table shown, what is the shrink-swell potential at a 30-inch depth for this soil?

- A. Low
- B. Low to moderate
- C. Moderate
- D. Moderate to high
- E. High